DIRECT TESTIMONY ON REHEARING OF JOHN P. LUBE
ON BEHALF OF AMERITECH ILLINOIS

INTRODUCTION

5 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

6 A. My name is John P. Lube. My business address is Three Bell Plaza, Dallas,

7 Texas 75202.

9 **Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?**

10 A. I am employed by SBC Operations, Inc., a subsidiary of SBC Communications

11 Inc. ("SBC"). My position is General Manager-Network Regulatory for SBC's

12 incumbent local exchange carriers ("ILECs").

14 **Q. WHAT ARE YOUR RESPONSIBILITIES?**

15 A. My current responsibilities include representing the planning, engineering, and

16 operations of SBC's ILEC networks, including that of Ameritech Illinois, before

17 federal and state regulatory bodies. In particular, my current responsibilities

18 include such representation for issues related to the SBC ILECs' Project Pronto.

20 **Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?**

21 A. I have a Bachelor of Science - Electrical Engineering degree from the University

22 of Houston in Houston, Texas. Also, I have completed company training and

23 external training related to network planning and engineering. network

1

1   technology, accounting. and telecommunications policy and regulation. In

2   addition, I am a Registered Professional Engineer in the State of Texas.

3

4   **Q.**   **PLEASE DESCRIBE YOUR WORK EXPERIENCE.**

5   A.   I have 30 years of service in SBC's affiliated companies. From 1969 through

6   1997, I held numerous positions with Southwestern Bell Telephone Company

7   ("SWBT"). My responsibilities included network planning, switching and

8   transmission equipment engineering, transmission facility design. trunk and

9   special services circuit design. plant cost allocation, plant valuation, plant

10   depreciation, and the standardization of all outside plant and transmission

11   equipment. In 1997, I held a position with SBC Long Distance and was

12   responsible for all regulatory matters in SWBT territory. I assumed my present

13   title and duties in June 1999.

14

15   **Q.**   **HAVE YOU PREVIOUSLY TESTIFIED BEFORE REGULATORY**
16   **COMMISSIONS?**

17   A.   Yes. I have previously filed testimony and/or appeared before the state utility

18   commissions in Arkansas, California, Kansas, Illinois, Michigan. Missouri,

19   Oklahoma, and Texas.

20

21   **Q.**   **HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS**
22   **PROCEEDING?**

23   A.   I filed an affidavit regarding Project Pronto in connection with Ameritech Illinois'

24   application for rehearing in this proceeding.

25

1   II. PURPOSE OF TESTIMONY

2   Q.   WHAT IS THE PURPOSE OF YOUR TESTIMONY?

3   A.   The purpose of my testimony is to address the Project Pronto issues subject to

4   rehearing in this proceeding.

5

6   Q.   WHAT PROJECT PRONTO ISSUES ARE SUBJECT TO REHEARING IN
7   THIS PROCEEDING?

8   A.   It is my understanding that there are three inter-related Project Pronto issues or

9   sub-issues that are within the scope of this rehearing. The first is whether

10   Ameritech Illinois must include in its interconnection agreements with Rhythms

11   and Covad language that would require it to provide line sharing over the fiber-

12   based Project Pronto network architecture. The second is whether Ameritech

13   Illinois must include in those interconnection agreements language that would

14   require it to unbundle the Project Pronto architecture, an issue that is directly tied

15   to the first issue. The third is whether those agreements should include language

16   that would allow the CLECs to own and collocate the line cards used in the

17   Project Pronto remote terminal ("RT") equipment, an issue that is directly tied to

18   the first two issues.

19

20 Q.   HOW DO THESE PROJECT PRONTO ISSUES RELATE TO THE
21   SCOPE OF THIS ARBITRATION?

22 A.   It is my understanding that the scope of this arbitration is disputed issues related

23   to line sharing, as required by the FCC's Line Sharing Order.[1] As I will explain

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[1] In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability
and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Third

1   in my testimony below, no such line sharing occurs over the fiber-based Project

2   Pronto network architecture. However, I will also explain in my testimony how

3   CLECs may achieve the same functional result as the line sharing required by the

4   FCC's Line Sharing Order by using the Project Pronto-based wholesale

5   Broadband Service. In other words, Ameritech Illinois' wholesale Broadband

6   Service, which the FCC approved as a condition of its Project Pronto Order,[2]

7   provides CLECs with a separate option for providing advanced services to end

8   users, in addition to the line sharing required by the FCC's Line Sharing Order.

9

10   **III. LINE SHARING DEFINED BY THE FCC**

11   **Q.**   **BEFORE GOING INTO MORE DETAILS ABOUT THE PROJECT**
12   **PRONTO ARCHITECTURE AND THE ASSOCIATED WHOLESALE**
13   **BROADBAND SERVICE, PLEASE EXPLAIN HOW THE FCC DEFINED**
14   **LINE SHARING.**

15   **A.**   Several cites directly from the FCC's Line Sharing Order provide a very clear

16   picture of the line sharing defined by and required by the FCC. First, the FCC

17   order provides a very basic definition of line sharing as follows:

18   "Line sharing generally describes the ability of two different
19   service providers to offer two services over the same line, with
20   each provider employing different frequencies to transport voice or
21   data over that line."[3]

22   The order then clarifies that this line sharing occurs only over copper loops (*i.e.*,

23   not fiber facilities), stating:

Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-98, FCC
99-355, released December 9, 1999 ("Line Sharing Order").
[2] In the Matter of Ameritech Corp., Transferor, and SBC Communications, Inc., Transferee, for Consent to
Transfer Control of Corporations Holding Commission Licenses and Lines Pursuant to Sections 214 and
310(d) of the Communications Act and Parts 5, 22, 24, 25, 63, 90, 95, and 101 of the Commission's Rules.
Second Memorandum Report and Order in CC Docket No. 98-141, FCC 00-336 (released September 8,
2000) ("Project Pronto Order"), paragraph 25.

1   "Line sharing through the simultaneous use of discrete
2   electromagnetic frequencies on <u>a single wire pair</u> to provide
3   separate communications services, is the only form of line sharing
4   considered in this Order, and is <u>only possible on metallic loops.</u>
5   Thus, <u>fiber-based transmission systems are not considered</u> in this
6   Order ..." [4] (emphasis added)

7   Next, the FCC order defines a new unbundled network element ("UNE"), the high

8   frequency portion of the loop ("HFPL"), as follows:

9   "... we conclude that access to the high frequency spectrum of a
10   local loop meets the statutory definition of a network element and
11   satisfies the requirements of sections 251(d)(2) and (c)(3). It is
12   technically feasible for an incumbent LEC to provide a competitive
13   LEC with access to the high frequency portion of the local loop as
14   an unbundled network element." [5]

15   The FCC order then re-emphasizes that its required line sharing relates only to

16   copper loops by clarifying that the HFPL UNE exists <u>only</u> on copper loops,

17   stating,

18   "We define the high frequency spectrum network element to be the
19   frequency range above the voiceband on a <u>copper loop facility</u>
20   used to carry analog circuit-switched voiceband transmissions." [6]
21   (emphasis added)

22   Last, the FCC order limits line sharing to those situations where the incumbent

23   LEC (*e.g.*, Ameritech Illinois) provides the POTS over the copper pair, stating.

24   "As stated previously, line sharing contemplates that the
25   <u>incumbent LEC continues to provide POTS</u> services on the lower
26   frequencies while another carrier provides data services on higher
27   frequencies. The record does not support extending line sharing
28   requirements to loops that do not meet the prerequisite condition
29   that an incumbent LEC be providing voiceband service on that
30   loop for a competitive LEC to obtain access to the high frequency
31   portion. Accordingly, we conclude that incumbent LECs must
32   make available to competitive carriers only the high frequency
33   portion of the loop network element on loops on which the

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[3] <u>Line Sharing Order</u>, paragraph 17.
[4] Id., footnote 27.
[5] Id., paragraph 25.
[6] Id., paragraph 26; *see also* 47 C.F.R. § 51.319(h)(1).

1   incumbent LEC is also providing analog voice service ..." [7]

2   (emphasis added)

3

4 Q. **FROM A TECHNICAL PERSPECTIVE, HOW IS THIS LINE SHARING**
5   **ACCOMPLISHED OVER FULL COPPER LOOPS?**

6 A. The diagram shown in my Attachment JPL-1 to this testimony demonstrates how

7   a CLEC can line share over a full copper loop (*i.e.,* a loop that is copper all the

8   way from the central office to the end user's premises). As demonstrated by the

9   thick line in this diagram, both the Ameritech Illinois POTS and the CLEC DSL

10   service co-exist on the same copper loop from the end user's premises to the

11   central office splitter. The splitter is essentially a filter that separates the POTS'

12   low-frequency signal from the DSL service's high-frequency signal. Once

13   separated, the POTS travels over a copper path to the Ameritech Illinois local

14   switch, and the DSL service travels over a separate copper path to the CLEC's

15   DSL Access Multiplexer ("DSLAM") located in the CLEC's central office

16   collocation arrangement. In this diagram, the splitter is shown to be provided by

17   the CLEC.

18

19 Q.   **FROM A TECHNICAL PERSPECTIVE, HOW IS THIS LINE SHARING**
20   **ACCOMPLISHED WHEN OLDER DIGITAL LOOP CARRIER IS**
21   **PRESENT?**

22 A.   Older digital loop carrier ("DLC") refers to DLC deployed by Ameritech Illinois

23   prior to Project Pronto. In contrast, Project Pronto utilizes a new version of DLC

24   known as Next Generation DLC ("NGDLC"), explained in more detail below.

25   Older DLC cannot be used with line sharing because it cannot support the higher

_____

[7] Id., paragraph 72.

1   signal bandwidths required for most forms of DSL. including all of those capable

2   of being line-shared. As a consequence, when older DLC is present. a CLEC can

3   only line share over the copper subloop between the serving area interface

4   ("SAI")[8] and the end user's premises. The diagram shown in my Attachment

5   JPL-2 illustrates how a CLEC would line share over a copper subloop. As

6   demonstrated by the thick line in this diagram, both the Ameritech Illinois POTS

7   and the CLEC DSL service co-exist on the same copper distribution subloop from

8   the end user's premises to the SAI, and on the CLEC's cabling from the SAI to its

9   remotely-located splitter.[9] Again, the splitter is essentially a filter that separates

10   the POTS' low-frequency signal from the DSL service's high-frequency signal.

11   Once separated. the POTS travels over a copper path to the Ameritech Illinois

12   DLC RT for transport back to its local switch. and the DSL service travels over a

13   separate copper path to the CLEC's remotely-located DSLAM.

14

15 **Q.**   **DO THE FCC'S LINE SHARING RULES CONTEMPLATE THIS**
16   **SITUATION WHERE A CLEC LINE SHARES OVER JUST THE**
17   **COPPER SUBLOOP?**

18 **A.**   Yes. Section 51.319(h)(6) of the FCC's line sharing rules states,

19   "Digital Loop Carrier Systems. Incumbent LECs must provide to
20   requesting carriers unbundled access to the high frequency portion
21   of the loop at the remote terminal [[10]] as well as the central office.

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[8] The SAI is the subloop access point in the loop where copper feeder pairs from the central office. or DLC-derived feeder pairs from the central office can be cross-connected to copper distribution pairs that serve the end users' premises.

[9] Ameritech Illinois offers CLECs a more economical and convenient means of accessing copper subloops at multiple SAIs from a single point within or near an Ameritech Illinois RT site. This means is called an "engineering controlled splice." or "ECS."

[10] Although the FCC uses the term "remote terminal" in this rule. there is generally no access to subloops at a remote terminal site. The next paragraph in my testimony cites FCC rule 51.319(a)(2), which clarifies the conditions for subloop access.

1   pursuant to section 51.319(a)(2) and section 51.319(h)(1)."
2   (emphasis added to the last part of this rule)

3   The underlined portion of this rule refers to two other FCC rules. These other two

4   rules, taken together, explain that, where DLC has been deployed, line sharing can

5   occur only over the copper distribution subloop. In other words, in this situation,

6   a CLEC must access the copper distribution subloop to line share because the

7   DLC portion of the loop cannot pass the DSL service's high-frequency signal

8   back to the central office for access by the CLEC. Specifically, the first of these

9   other two FCC rules, Section 51.319(a)(2), defines the subloop and subloop

10   access as:

11   *"Subloop.* The subloop network element is defined as any portion
12   of the loop that is technically feasible to access at terminals in the
13   incumbent LEC's outside plant, including inside wire. An
14   accessible terminal is any point on the loop where technicians can
15   access the wire or fiber within the cable without removing a splice
16   case to reach the wire or fiber within. Such points may include,
17   but are not limited to, the pole or pedestal, the network interface
18   device, the minimum point of entry, the single point of
19   interconnection, the main distribution frame, the remote terminal,
20   and the feeder/distribution interface [11]."

21   More importantly, however, the second of these other two FCC rules, Section

22   51.319(h)(1), limits line sharing in DLC situations to only the copper subloop

23   (i.e., not also the DLC portion of the loop), stating:

24   "The high frequency portion of the loop network element is
25   defined as the frequency range above the voiceband on a copper
26   loop facility that is being used to carry analog circuit-switched
27   voiceband transmissions." (emphasis added)

28

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[11] The "feeder/distribution interface" is another term for the SAI.

8

1   Q.   **WHAT IS THE IMPACT OF PROJECT PRONTO ON THE LINE**
2   **SHARING SCENARIOS ILLUSTRATED IN BOTH ATTACHMENT JPL-**
3   **1 AND ATTACHMENT JPL-2?**

4   A.   Project Pronto is an overlay network architecture. This means that the existing

5   copper loops and copper subloops in Ameritech Illinois' network are not replaced

6   by Project Pronto. Therefore, Project Pronto has <u>no impact</u> on the availability of

7   copper loops or copper subloops to a CLEC for line sharing in accordance with

8   the FCC's <u>Line Sharing Order</u>. In fact, as I explain below, the wholesale

9   Broadband Service, which utilizes the Project Pronto architecture, offers CLECs

10   an additional option for providing advanced services to an Ameritech Illinois

11   POTS end user (*i.e.*, achieving the same functional result as the FCC's required

12   line sharing).

13

14   **IV. DESCRIPTION OF THE PROJECT PRONTO ARCHITECTURE**

15   Q.   **WHAT IS PROJECT PRONTO?**

16   A.   Project Pronto is SBC's deployment of an overlay, broadband-capable loop

17   network in its 13-state ILEC territory. This new network architecture will allow

18   Ameritech Illinois to offer new wholesale broadband services that, in turn, will

19   allow CLECs to offer DSL services to more consumers and businesses than can

20   be reached today directly with central office DSLAMs over full copper loops.

21

22   Q.   **WHAT COMPONENTS MAKE UP THE PROJECT PRONTO**
23   **ARCHITECTURE?**

24   A.   The new Project Pronto architecture consists of the following network

25   components:

1   • copper feeder pairs between a SAI and a Project Pronto RT;

2   • NGDLC RTs used for both voice (i.e., POTS) and data (i.e., DSL)[12] services;

3   • separate fibers for voice and data between each RT and its central office;[13]

4   • optical concentration devices ("OCDs") in the central offices used for data;

5   and

6   • NGDLC central office terminals ("COTs") used for voice.

7

8   Q.   **WHICH OF THESE PROJECT PRONTO COMPONENTS REPRESENT**
9   **NEW TECHNOLOGY?**

10 A.   The components of the Project Pronto architecture that represent new technology

11   are the NGDLC and the OCD.

12

13 Q.   **PLEASE BRIEFLY EXPLAIN THE NGDLC TECHNOLOGY.**

14 A.   The NGDLC technology is analogous to existing, older DLC deployed in

15   Ameritech Illinois' network. The significant difference, from a Project Pronto

16   perspective, is that the NGDLC has the ability to support the higher bandwidths of

17   DSL services. The previously-deployed types of DLC, including those that are

18   fiber-fed, do not have this bandwidth capability, and therefore, cannot be used for

19   DSL services.

20

21 Q.   **PLEASE BRIEFLY EXPLAIN THE OCD.**

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[12] While the term "data" can refer to many different types of high-bandwidth services, that term is used throughout this testimony to refer only to DSL-type services.

[13] The vast majority of Ameritech Illinois' Project Pronto RTs will be Alcatel Litespan 2000 equipment that utilizes separate fibers for voice and data transmission. Other types of RT equipment being deployed with Project Pronto are discussed in more detail later in my testimony.

1   A.   The OCD is a central office device that essentially serves as a router and

2   aggregator for data signals. The inbound ports on the OCD receive the OC-3c

3   optical signals from all of the Project Pronto RT sites served out of that central

4   office. All of these OC-3c optical signals contain the data signals from numerous

5   end users, each of which is served by the CLEC of their choice. The OCD routes

6   each end user's data signal to the appropriate outbound port on the OCD for

7   delivery to that end user's chosen CLEC. All such data signals bound for a

8   particular CLEC are aggregated to the OCD's outbound port specific to that

9   CLEC.[14]

10

11 Q.   **WILL THE PROJECT PRONTO ARCHITECTURE ALSO SUPPORT**
12   **VOICE SERVICES?**

13 A.   Yes. The Project Pronto architecture will also support voice services in two ways.

14   First, Project Pronto will provide Ameritech Illinois with a vehicle for future

15   POTS-only growth. Second, because POTS and some types of DSL service can

16   be provided simultaneously to the same end user over the NGDLC platform (such

17   as with Asymmetric DSL, or "ADSL"), this architecture will free up copper

18   feeder pairs, currently used for existing POTS, for other services.

19

20 Q.   **WILL THE DEPLOYMENT OF PROJECT PRONTO CAUSE**
21   **AMERITECH ILLINOIS TO PROACTIVELY MIGRATE EXISTING**
22   **POTS-ONLY END USERS FROM COPPER LOOPS TO THE PROJECT**
23   **PRONTO ARCHITECTURE?**

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[14] In this context, the terms "inbound" and "outbound" reflect the perspective of upstream DSL traffic from the end user. In reality, DSL is a bi-directional service. Therefore, the ports connected to both the CLECs and the RTs are actually both inbound and outbound.

1   A.   No. Existing POTS-only end users will be moved to the Pronto Architecture only

2   if the end user requests DSL service over the existing copper pair into its

3   premises, and only if the CLEC providing the DSL service chooses to use the

4   Project Pronto architecture.

5

6   Q.   **IF SBC HAS DEPLOYED PROJECT PRONTO AS A BROADBAND**
7   **PLATFORM FOR ALL CLECS TO OFFER DSL SERVICES, WHY HAS**
8   **SBC CHOSEN TO INITIALLY DEPLOY ONLY ADSL?**

9   A.   SBC has always viewed Project Pronto as a means to extend broadband

10   capabilities to the "mass market" (i.e., residential and small business customers),

11   a segment of the public historically unable to obtain broadband services. In

12   contrast, other business customers generally have had access to broadband

13   capabilities for many years. Today, this mass market generally wants broadband

14   capabilities for high-speed Internet access. The bandwidth needed for Internet

15   access is generally asymmetric (i.e., large bandwidth downstream toward the end

16   user, and smaller bandwidth upstream toward the Internet). In addition, these end

17   users often do not want separate lines into their premises for Internet access.

18   ADSL is the form of DSL that provides the best match for these criteria, and is

19   more readily available in NGDLC equipment. Therefore, this choice allows all

20   CLECs the ability to offer DSL services to these end-users more rapidly.

21

22   **V. DESCRIPTION OF THE BROADBAND SERVICE**

23   Q.   **PLEASE DESCRIBE AMERITECH ILLINOIS' BROADBAND SERVICE**
24   **OFFERING.**

1   A.   The Broadband Service is a wholesale, end-to-end service (i.e., from the central

2   office to the end user's premises) which utilizes the various components of the

3   Project Pronto architecture and Ameritech Illinois' existing copper distribution

4   pairs. All of these network components work in conjunction with one another to

5   provide the end-to-end Broadband Service capable of supporting CLECs' retail

6   DSL services.

7

8   Q.   **WHAT VARIATIONS OF THE WHOLESALE BROADBAND SERVICE**
9   **ARE AVAILABLE TO CLECS?**

10 A.   Ameritech Illinois currently offers three different wholesale Broadband Service

11   arrangements to CLECs. The first is a "data-only" service arrangement, where a

12   CLEC provides only DSL service over an end user's loop that is not also used to

13   provide POTS to that end user. The diagram included in Attachment JPL-3 to my

14   testimony shows this service arrangement.

15

16 Q.   **HOW DOES THE DATA-ONLY SERVICE ARRANGEMENT RELATE**
17   **TO LINE SHARING?**

18 A.   As I explained previously, line sharing required by the FCC involves the

19   provision of two different services (i.e., an advanced service and POTS) by two

20   different carriers over the same copper loop facility.[15] As its name indicates, the

21   "data-only" Broadband Service arrangement involves only one service (i.e., data)

22   on the end user's loop. Therefore, this service arrangement is not at all related to

23   the FCC's line sharing requirement.

24

1 Q. **WHAT IS THE SECOND VARIATION OF THE WHOLESALE**
2 **BROADBAND SERVICE?**

3 A. The second Broadband Service arrangement is the "data with line-shared

4 subloop" service arrangement. The diagram included in Attachment JPL-4 to my

5 testimony illustrates this service arrangement. As this diagram shows, this service

6 arrangement functionally achieves the same result for the CLEC as the line

7 sharing required by the FCC's Line Sharing Order. That is, the CLEC may

8 provide DSL service to an Ameritech Illinois POTS customer over the same,

9 single copper distribution pair. However, I will explain later in my testimony

10 why the end-to-end "data with line-shared subloop" Broadband Service

11 arrangement is, indeed, different from the line sharing required by the FCC.

12

13 Q. **WHERE THE PROJECT PRONTO ARCHITECTURE IS DEPLOYED,**
14 **WILL THIS BROADBAND SERVICE ARRANGEMENT BE THE ONLY**
15 **OPTION AVAILABLE FOR CLECS WHO WANT TO PROVIDE DSL**
16 **OVER AN AMERITECH ILLINOIS POTS LINE?**

17 A. No. If line sharing, as defined by the FCC, was previously possible over a full

18 copper loop or a copper subloop, as shown in Attachments JPL-1 and JPL-2,

19 respectively, the deployment of Project Pronto in that same geographic service

20 area will not eliminate those pre-existing options for line sharing. In other words,

21 although the "data with line-shared subloop" Broadband Service arrangement will

22 be offered to CLECs in those areas where Project Pronto has been deployed,

23 CLECs may still choose, instead, to accomplish line sharing via the pre-existing

24 full copper loop or subloop. The wholesale Broadband Service simply enhances

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[15] Line Sharing Order, paragraph 17.

14

1   the CLECs' ability to offer advanced services by providing them with another

2   option that goes above and beyond the line sharing required by the FCC.

3

4 **Q.**   **HAS AMERITECH ILLINOIS RECENTLY RENAMED THE "DATA**
5   **WITH LINE-SHARED SUBLOOP" BROADBAND SERVICE**
6   **ARRANGEMENT?**

7 **A.**   Yes. This second Broadband Service arrangement had been previously called the

8   "line-shared" service arrangement,[16] simply because the overall service

9   configuration allows a CLEC to provide DSL service to an Ameritech Illinois

10   POTS end user (*i.e.*, the same functional result as line sharing). However, it is

11   generally not possible for voice and data to physically share the same fiber "line"

12   (*i.e.*, fiber strand) within the Project Pronto architecture as it is actually deployed.

13   Much more importantly, though, even in those instances where "fiber sharing"

14   might exist in this architecture, as it is actually deployed, that form of sharing is

15   explicitly not what the FCC intended in its <u>Line Sharing Order</u>.[17] Therefore, it

16   was misleading for Ameritech Illinois to refer to this as a "line-shared" service

17   arrangement. Consequently, Ameritech Illinois now refers to this same

18   configuration as the "data with line-shared subloop" service arrangement, to make

19   clear that actual line sharing occurs only in the copper subloop portion of the end-

20   to-end Broadband Service.

21

22 **Q.**   **WHAT IS THE THIRD VARIATION OF THE WHOLESALE**
23   **BROADBAND SERVICE?**

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[16] Ameritech Accessible Letter CLECAM00-044, dated May 24, 2000, Attachment 1, page 7, section 4.0.
[17] <u>Line Sharing Order</u>, footnote 27.

1   A.   The third Broadband Service arrangement is the "combined voice and data"

2   service arrangement. The diagram included in Attachment JPL-5 to my testimony

3   shows this service arrangement.

4

5   Q.   **HOW DOES THIS SERVICE ARRANGEMENT RELATE TO LINE**
6   **SHARING?**

7   A.   In this service arrangement, the same CLEC provides both the POTS and the DSL

8   service. As I previously explained, the FCC's Line Sharing Order defines line

9   sharing as those instances where the incumbent LEC provides the POTS.[18]

10   Therefore, this service arrangement is not at all related to line sharing as defined

11   by the FCC.

12

13

14

15   **VI. AMERITECH ILLINOIS' BROADBAND SERVICE VS. FCC-REQUIRED**
16   **LINE SHARING**

17   Q.   **HOW DOES AMERITECH ILLINOIS' WHOLESALE BROADBAND**
18   **SERVICE PROVIDE CLECS WITH AN ADDITIONAL, VIABLE OPTION**
19   **TO LINE SHARING?**

20   A.   As stated above, the NGDLC RT equipment deployed with the Project Pronto

21   architecture supports both POTS and DSL service. Under the second wholesale

22   Broadband Service arrangement described above (i.e., the "data with line-shared

23   subloop" service arrangement), Ameritech Illinois' POTS and the CLEC's DSL

24   service are carried together over the same copper pair serving the end user.

25   Hence, this copper pair is the "line-shared subloop" component of this Broadband

1   Service arrangement. The POTS and DSL service then travel together through

2   the backplane (*i.e.*, wiring and connectors) of the data channel bank in the

3   NGDLC RT, to a port on the NGDLC RT's ADSL Digital Line Unit ("ADLU")

4   card. The voice and data signals are then split into two separate paths on the

5   ADLU card.

6

7   The data signal is processed and multiplexed in the data channel bank by the

8   combination of the ADLU card, and, via the backplane wiring, the "common"

9   equipment located in the data channel bank. Multiplexed data signals are then

10   transmitted from the NGDLC RT's data channel bank over the data OC-3c fibers

11   to the OCD in the central office, routed through the OCD, and delivered to the

12   appropriate CLEC via the CLEC's OCD port.

13

14   The voice signal is processed and multiplexed by the combination of the ADLU

15   card in the data channel bank, and via the backplane wiring, the common

16   equipment located in the data channel bank and in the common control assembly

17   ("CCA") shelf. In the CCA, the voice signals from all data channel banks and all

18   voice channel banks within the NGDLC RT are multiplexed onto the voice OC-3

19   fiber transport back to the NGDLC COT equipment and Ameritech Illinois' local

20   switch.

21

22   The net result is that an end user is able to receive both POTS and DSL service

23   over the same copper distribution pair, and that a CLEC may provide this DSL

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[18] Id., paragraph 72.   17

1   service while Ameritech Illinois provides the POTS. Therefore, this Broadband

2   Service arrangement achieves the same functional result as the line sharing

3   defined by the FCC's Line Sharing Order.

4

5 Q.   **HOW DOES THIS COMPARE TO THE LINE-SHARING REQUIRED BY**
6   **THE FCC?**

7 A.   One of the components of this Broadband Service arrangement, the "line-shared

8   subloop," does follow the same concept specified by the FCC in its Line Sharing

9   Order. In other words, the manner in which the voice and data signals co-exist on

10   the same copper pair is that the voice signal occupies the low-frequency part of

11   the spectrum on the copper pair, and the data signal occupies the high-frequency

12   part of the spectrum on that same pair. However, throughout the rest of this end-

13   to-end Broadband Service arrangement, the voice and data signals not only do not

14   occupy the same copper facility (as line sharing was defined by the FCC), but

15   also, the voice and data signals generally do not share the same fibers from the

16   Project Pronto NGDLC RT back to the central office.

17

18 Q.   **DOES THE PROJECT PRONTO ARCHITECTURE AND THE**
19   **WHOLESALE BROADBAND SERVICE PREVENT CLECS FROM LINE**
20   **SHARING AS DEFINED BY THE FCC?**

21 A.   No. The line sharing defined by the FCC involves Ameritech Illinois' copper

22   loops and subloops. As I explained above, because Project Pronto is an overlay

23   network architecture, it does not displace Ameritech Illinois' existing copper

24   loops and sub-loops. On the contrary, as I noted above, Ameritech Illinois'

1   wholesale broadband service provides CLECs with an additional means of

2   providing DSL service to end-users.

3

4   **Q.**   **YOU HAVE EXPLAINED THAT PROJECT PRONTO DEPLOYMENT**
5   **WILL NOT RESULT IN THE REMOVAL OF AMERITECH ILLINOIS'**
6   **EXISTING COPPER LOOP PLANT. YOU HAVE ALSO EXPLAINED**
7   **HOW THE WHOLESALE BROADBAND SERVICE UTILIZES THE**
8   **PROJECT PRONTO ARCHITECTURE PLUS EXISTING COPPER**
9   **DISTRIBUTION PAIRS. DOES THE BROADBAND SERVICE LIMIT**
10   **THE CLECS' USE OF THESE EXISTING COPPER DISTRIBUTION**
11   **PAIRS?**

12   **A.**   No, it does not. Even though the end-to-end wholesale Broadband Service that

13   Ameritech Illinois offers utilizes a copper subloop from the SAI to the end user's

14   premises, none of these copper subloops are pre-dedicated to the Project Pronto

15   architecture or the Broadband Service. A copper subloop to an end user will be a

16   part of the end-to-end Broadband Service only when a CLEC chooses to utilize

17   the Broadband Service to provide DSL service to that end user. Otherwise, all of

18   these copper distribution pairs between the SAI and the end users' premises are

19   available to be used by the CLEC on a stand-alone basis or in a line-sharing

20   arrangement required by the FCC. For example, a CLEC can use a copper

21   distribution pair as part of a complete unbundled loop from the central office to an

22   end user. Similarly, the CLEC can use this pair as just a copper subloop from the

23   SAI to the end user, in conjunction with its remotely located DSLAM.

24

25 **VII. FIBER SHARING WITHIN THE PROJECT PRONTO ARCHITECTURE**

26   **Q.**   **IS IT TECHNICALLY FEASIBLE FOR VOICE AND DATA SIGNALS TO**
27   **BE TRANSPORTED OVER THE SAME FIBER?**

1   A.   Yes. It is certainly technically feasible to multiplex both voice and data signals

2   onto the same optical signal for transport over a single fiber. However, such

3   "fiber sharing" by the voice and data signals is totally different from the line

4   sharing required by the FCC. As I explained previously, the line sharing required

5   by the FCC's Line Sharing Order consists of a voice signal and a data signal

6   occupying the low-frequency and high-frequency portions of the spectrum,

7   respectively, on a single copper pair.

8

9   Q.   **CAN THE FIBER SHARING JUST DESCRIBED ABOVE OCCUR**
10   **THROUGHOUT THE PROJECT PRONTO ARCHITECTURE?**

11   A.   No. It is simply not physically possible to do this in the preponderance of the

12   Project Pronto NGDLC systems being deployed in Ameritech Illinois.

13

14
15   Q.   **WHY IS IT GENERALLY NOT POSSIBLE FOR VOICE AND DATA TO**
16   **SHARE THE SAME FIBER IN THE PROJECT PRONTO NGDLC?**

17   A.   The preponderance of the fiber-fed NGDLC equipment being deployed by

18   Ameritech Illinois under Project Pronto is Alcatel Litespan 2000, which utilizes

19   separate fiber paths for data and voice. This literally means only voice services

20   such as POTS travel on the fibers dedicated to voice transport, and only data

21   services such as DSL travel on the fibers dedicated to data transport. Therefore,

22   no fiber sharing can take place within these Project Pronto NGDLC systems.

23

24   Q.   **ARE THERE ANY CIRCUMSTANCES UNDER WHICH THE VOICE**
25   **AND DATA SIGNALS WOULD OCCUPY THE SAME FIBERS IN THE**
26   **PROJECT PRONTO ARCHITECTURE?**

1 A. Yes, in very limited circumstances. For some Project Pronto RT locations,

2 Ameritech Illinois will be deploying Alcatel Litespan 2012 NGDLC equipment.

3 This version of the Alcatel NGDLC equipment includes built-in OC-12 SONET

4 multiplexer functionality at both the RT and the central office. This built-in

5 SONET multiplexer functionality is used to establish an OC-12 optical system

6 between the RT and the central office. This OC-12 system has the capacity for

7 four OC-3 optical signals, allowing the OC-12 system to transport the NGDLC's

8 voice OC-3 signal, the NGDLC's data OC-3c signal, and two additional OC-3

9 signals over the same fiber. However, this OC-12 multiplexing is based on time-

10 division multiplexing, not on any wavelength multiplexing, which Mr. James

11 Keown discusses in his testimony.

12

13 Q. **WHEN WILL AMERITECH ILLINOIS DEPLOY THE ALCATEL**
14 **LITESPAN 2012 NGDLC EQUIPMENT?**

15 A. Ameritech Illinois will deploy the Alcatel Litespan 2012 NGDLC equipment for a

16 Project Pronto RT site only when there is demand for additional high-capacity

17 services in the area served by that RT site that cannot be served by the Alcatel

18 Litespan 2000 NGDLC equipment. For example, if there were demand for DS-3

19 and/or OC-3 services to end users in that geographic area, the bandwidth in the

20 two additional OC-3 signals available with the Alcatel Litespan 2012 NGDLC

21 equipment could be used to serve those needs. Otherwise, it is not economical for

22 Ameritech Illinois to deploy the more-costly Alcatel Litespan 2012 NGDLC

23 equipment for Project Pronto.

24

1 Q. **IN THE INSTANCES WHERE AMERITECH ILLINOIS IS DEPLOYING**
2 **THE ALCATEL LITESPAN 2000 NGDLC EQUIPMENT, IS IT**
3 **TECHNICALLY POSSIBLE FOR THE VOICE OC-3 SIGNAL AND THE**
4 **DATA OC-3C SIGNAL TO BE PLACED ON THE SAME FIBERS USING**
5 **AN OUTBOARD (I.E., STAND-ALONE) SONET MULTIPLEXER?**

6 A. Yes, it is technically feasible to combine (i.e., multiplex) these two optical signals

7 in a higher-speed SONET system using outboard multiplexers in the RT site and

8 central office. However, doing so just to force the NGDLC voice and data signals

9 onto the same fibers would clearly amount to uneconomic use of otherwise

10 unnecessary and costly multiplexing equipment. In other words, it is just not

11 cost-justified for Ameritech Illinois to purchase and install the outboard SONET

12 multiplexers for this purpose.

13

14 Q. **CAN THE ALCATEL LITESPAN NGDLC EQUIPMENT BEING**
15 **DEPLOYED BY AMERITECH ILLINOIS FOR PROJECT PRONTO BE**
16 **MADE TO CARRY VOICE AND DATA SIGNALS ON THE SAME**
17 **FIBERS IN ANY OTHER WAY?**

18 A. Alcatel does manufacture additional components, which could be purchased and

19 installed with the Litespan NGDLC equipment being deployed by Ameritech

20 Illinois, to make the voice and data signals travel over the same fibers. These

21 components reconfigure the Litespan NGDLC system architecture for wavelength

22 division multiplexing ("WDM"), such that the OC-3 for voice and the OC-3c for

23 data are transmitted at separate wavelengths (*i.e.*, colors of light) through the

24 same fibers. Mr. James Keown describes this additional equipment in more detail

25 in his testimony.

26

27 Q. **WHY IS AMERITECH ILLINOIS NOT UTILIZING WDM EQUIPMENT**
28 **FOR ITS PROJECT PRONTO NGDLC SYSTEMS?**

1   A.   Ameritech Illinois is not deploying the additional Alcatel WDM components for

2   the Litespan NGDLC systems because doing so is not cost-effective. That is, the

3   additional cost of the equipment to achieve this reconfiguration is much greater

4   than the incremental cost of using separate fibers for voice and data between the

5   RT and the central office.

6

7   Q.   **IS AMERITECH ILLINOIS OBLIGATED TO EXPEND MORE CAPITAL**
8   **WITH PROJECT PRONTO JUST TO FORCE VOICE AND DATA**
9   **SIGNALS TO TRAVEL OVER THE SAME FIBERS?**

10   A.   No. Ameritech Illinois is under no obligation to purchase any particular or

11   additional equipment to deploy its network, let alone additional and/or more-

12   costly equipment when there is no economic reason for doing so. Furthermore,

13   such fiber sharing is not required by the FCC's Line Sharing Order. Nor is fiber

14   sharing relevant to achieving the functionality of a CLEC providing DSL service

15   over the same copper pair used by Ameritech Illinois to provide POTS to an end

16   user. Moreover, Ameritech Illinois provides CLECs with an additional option for

17   achieving the same functional result as FCC-required line sharing, via the

18   wholesale Broadband Service.

19

20   Q.   **ARE THERE ANY OTHER TYPES OF NGDLC THAT AMERITECH**
21   **ILLINOIS WILL BE USING AS PART OF PROJECT PRONTO?**

22   A.   Yes. Ameritech Illinois will make limited use of the AFC UMC-1000 NGDLC

23   equipment as part of Project Pronto. The UMC-1000 is a smaller NGDLC system

24   that will be used only in situations where the amount of DSL demand is not

25   expected to be sufficient to cost-justify an Alcatel 2000 system.

1

2   Q.   **DOES THE UMC-1000 UTILIZE THE SAME FIBERS FOR VOICE AND**
3   **DATA SIGNALS?**

4   A.   Yes. The UMC-1000 multiplexes both the DSL and POTS signals in an ATM

5   format for transmission over the same fibers.

6

7   Q.   **SHOULD AMERITECH ILLINOIS CHOOSE ITS NGDLC VENDORS**
8   **BASED UPON WHETHER OR NOT THEY UTILIZE A SHARED-FIBER**
9   **ARCHITECTURE FOR VOICE AND DATA?**

10 A.   No. As I explained above, the type of NGDLC being deployed with Project

11   Pronto generally does not multiplex data and voice signals onto the same fibers.

12   It is irrelevant whether Ameritech Illinois' NGDLC manufacturers make any

13   other equipment that does enable such fiber sharing, or even whether another

14   manufacturer's equipment permits or utilizes such fiber sharing. Ameritech

15   Illinois chooses its suppliers of electronic equipment based upon many factors,

16   such as availability, system capacity, delivery interval, price, and warranty.

17   Furthermore, nothing in the 1996 Federal Telecommunications Act ("Act") or the

18   FCC's implementing rules allows a CLEC or a regulatory body to dictate the type

19   of technology or equipment, or the manufacturer of that equipment, that an

20   incumbent LEC deploys in its network.

21

22 Q.   **IS THERE ANY ANTI-COMPETITIVE REASON FOR AMERITECH**
23   **ILLINOIS TO UTILIZE NGDLC THAT DOES NOT SHARE FIBERS?**

24 A.   Not at all. There is absolutely no anti-competitive purpose for selecting a fiber-

25   fed NGDLC technology that utilizes separate fibers for data and voice. This is

26   clearly demonstrated by the fact that Ameritech Illinois makes the Project Pronto

1   architecture available to every CLEC, including Ameritech Illinois' advanced

2   services affiliate, on the same basis via the wholesale Broadband Service, whether

3   or not voice and data signals travel over the same fibers. Furthermore, as I

4   explained previously, Ameritech Illinois' end-to-end wholesale Broadband

5   Service provides CLECs with an additional option for accomplishing the same

6   functional result as the FCC-required line sharing.

7

8   Q.   **DOES IT MATTER WHETHER OR NOT THE DATA AND VOICE**
9   **SIGNALS TRAVEL ON THE SAME OR DIFFERENT FIBERS?**

10   A.   As far as a CLEC's ability to provide DSL service to an Ameritech Illinois POTS

11   end user, it does not matter at all. Again, although the DSL signal and the POTS

12   signal usually travel over separate fibers through the Project Pronto architecture,

13   the Project Pronto platform, as a whole, provides CLECs with an additional

14   option for accomplishing the same functional result as FCC-required line sharing,

15   via the wholesale Broadband Service. More importantly, even if Ameritech

16   Illinois' Project Pronto architecture always placed the voice and data signals on

17   the same fibers, that would still not be line sharing, as defined and required by the

18   FCC.

19

20   **VIII. TECHNICAL INFEASIBILITY OF UNBUNDLING PROJECT PRONTO**

21   Q.   **THE CLECS' INSISTENCE THAT "LINE SHARING" OCCURS OVER**
22   **AMERITECH ILLINOIS' FIBER-FED NGDLC SYSTEMS APPEARS TO**
23   **BE TIED TO THEIR DESIRE FOR THE PROJECT PRONTO**
24   **ARCHITECTURE AND/OR THE WHOLESALE BROADBAND SERVICE**
25   **TO BE UNBUNDLED. SHOULD AMERITECH ILLINOIS BE**
26   **REQUIRED TO UNBUNDLE PROJECT PRONTO AND/OR THE**
27   **ASSOCIATED WHOLESALE BROADBAND SERVICE?**

1   A.   No. for at least three reasons. First, the Project Pronto network architecture

2   cannot be unbundled for a CLEC's dedicated use in the manner that the FCC has

3   unbundled other network elements. Second, even if there appeared to be some

4   compelling reason (which there is not) to unbundle this network architecture, it

5   would not be appropriate to do so. This is because the Project Pronto architecture

6   includes components that fit the FCC's definition of packet switching. which the

7   FCC declined to unbundle in its UNE Remand Order, except in extremely limited

8   circumstances that do not apply to Ameritech Illinois.[19] Finally, even if the FCC

9   had not already spoken conclusively on the issue, any CLEC effort to unbundle

10   the Project Pronto architecture or the associated Broadband Service would have to

11   be supported by an analysis that satisfies the "necessary" and "impair" standards

12   required by the Act for such unbundling.[20]

13

14   Q.   **PLEASE EXPLAIN WHY THIS ARCHITECTURE CANNOT BE**
15   **UNBUNDLED.**

16   A.   It is not physically possible to unbundle this network architecture because of the

17   manner in which the components of the architecture interconnect and interwork

18   with one another. For example, a single end user's DSL service does not occupy

19   an accessible, physical, end-to-end path through the architecture. In addition, the

20   physical parts of this architecture used by the CLEC, through the Broadband

21   Service offering, to provide DSL service to an end user do not bear a one-to-one

22   correspondence throughout the DSL service's path. As a consequence, Ameritech

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[19] In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996. Third Report and Order and Fourth Further Notice of Proposed Rulemaking in CC Docket No. 96-98. FCC 99-238. released November 5, 1999 ("UNE Remand Order"), paragraph 306.